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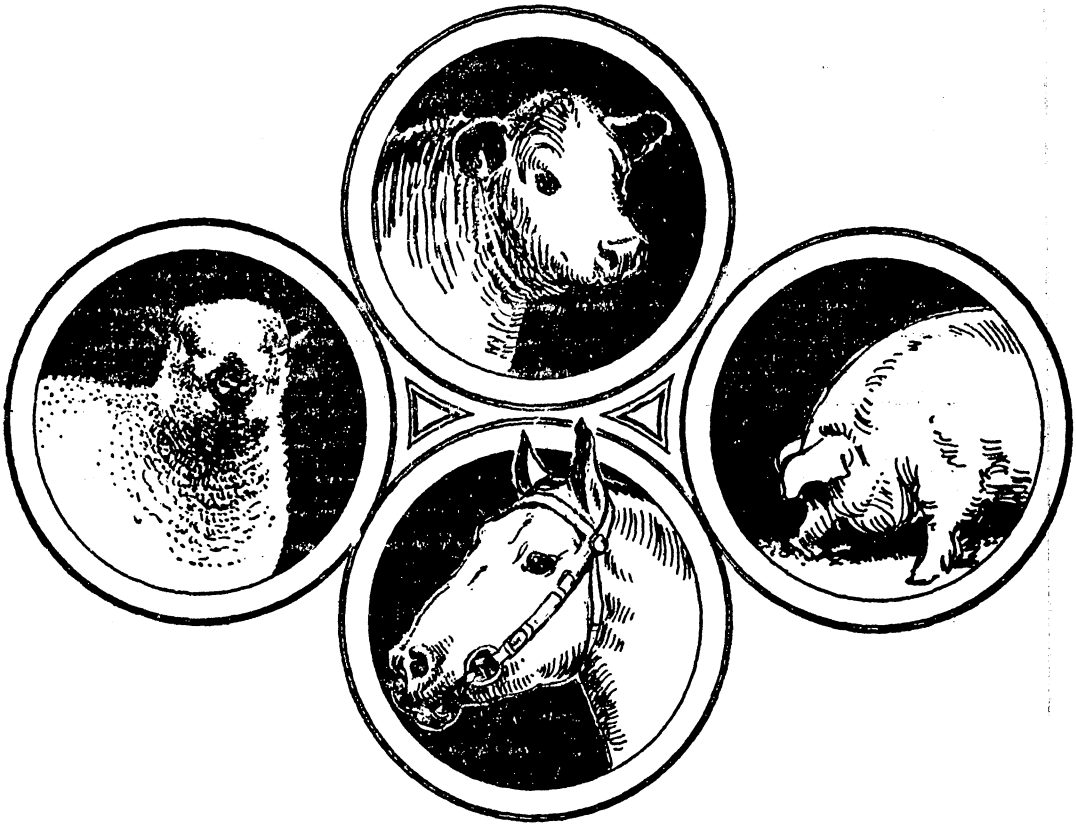
The EXTENSION ANIMAL HUSBANDMAN



UNITED STATES DEPARTMENT
OF AGRICULTURE
WASHINGTON,
D.C.

Serial No. 14

June, 1929.

THE AMERICAN'S CREED

I believe in the United States of America, as a government of the people, by the people, for the people; whose just powers are derived from the consent of the governed; a democracy in a republic; a sovereign nation of many sovereign states; a perfect union, one and inseparable; established upon those principles of freedom, equality, justice and humanity, for which American patriots sacrificed their lives and fortunes. I therefore believe it is my duty to my country to love it; to support its constitution; to obey its laws; to respect its flag; to defend it against all enemies.

--- William Tyler Page

All communications regarding this publication, which is issued quarterly, should be addressed to:

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U. S. Department of Agriculture,
Washington, D. C.

UNITED STATES DEPARTMENT OF AGRICULTURE

Washington, D. C.

THE EXTENSION ANIMAL HUSBANDMAN

Issued by the Bureau of Animal Industry and the
Office of Cooperative Extension Work, cooperating.

Serial Number 14 -- -- June, 1929.

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PROGRESS IN MEAT INVESTIGATIONS

by K. F. Warner,
In Charge, Meat Investigations,
Animal Husbandry Division, U. S. Bureau of Animal Industry.

- - -

In the Bureau of Standards, Washington, D. C., closely guarded from variations in temperature and humidity, and from irreverent hands, is the exact unit of linear measure. Through it, or because of its existence, it is possible for people everywhere to erect houses, build machinery and lay out roads. Material for a bridge across, say the Ohio River, can be fabricated in the steel mills at Gary, or at Pittsburgh, or at Birmingham. Construction of the bridge can be started on both sides of the river with the assurance that the final or middle span will fit exactly into place.

In every large steel mill research laboratories continuously brew new mixtures of molten steel hoping to evolve a rail better suited to the demands of modern traffic. However, no new kind of steel is trusted with lives and property along the right of way until it has been thoroughly tested in the laboratory - tested for its ability to stand the ceaseless wear of countless wheels, tested for a toughness that will endure the pounding of a giant Mogul engine.

Scattered throughout this country are millions of head of livestock, thousands of stockmen and millions of dollars' worth of equipment. These comprise a vast industry engaged in producing its own livelihood by supplying the needs of dependent consumers. Yet nowhere in that industry is there a "foot rule" capable of measuring either the needs of the market or the results of production methods. Custom and opinion are largely responsible for prevailing ideas as to quality and character of the meat produced and the uses to which various grades can best be put. Meat investigations as conducted by individual station staffs and as conducted by these same staffs in cooperation with one another have been planned to develop a measurement for quality - a measurement that will state definitely the effect of grass, grain, sex, age, fatness and kindred factors upon the quality and palatability of the meat produced; and that will determine the cooking or processing method best suited to each kind and cut. Although this line of investigation is fairly new, enough has already been accomplished to brand some existing ideas definitely as prejudice and fancy rather than fact. This work with color and age serves to emphasize the possibilities ahead of us and the need for immediate attention.

The research itself has been divided into two parts. The first,

and for the present, the most important one dealing with method or plan of attack. The second part is the application of these methods to experimental animals for the determination of the effect of various production and cooking practices upon the palatability and nutritive value of the final product.

Developing methods has proved quite an undertaking. It is necessary to measure the sensations of the consumer. A large and specially trained grading committee is used by the Department and all the cooperating State stations to record an average opinion as to the tenderness and flavor of the various meats. From the standpoint of practicability, however, this personal judgment should be eliminated. The records of this grading committee will finally be of more importance in providing a check or guide for judging the accuracy and efficiency of the new laboratory methods that must ultimately replace the committee.

The study of tenderness is an excellent example of what is being done along this line. A large series of devices or instruments have been used in an effort to measure the breaking strength of the raw and cooked muscle. Unquestionably more research is needed along this line. At present, however, a mechanical shear is being used which appears also to give some measure of the tensile strength of the muscle. Results obtained from several hundred samples of beef ribs indicate a close correlation between the breaking strength of the raw muscle of the right side as against the breaking strength of the corresponding raw muscle from the other side of the animal. There has also been obtained a significant correlation between the report of this machine as to the breaking strength of the roasted muscle and the average opinion of the cooked-meat grading committee on tenderness. There has been, however, a most interesting lack of correlation between the breaking strength of the raw muscle and the tenderness records of the roasted muscle. It is possible that the report of the grading committee is more accurate than the record of the machine. It is believed, however, that the machine can be made more accurate than the committee.

With the assistance of the chemists in the perfume industry, standard odors both as to character and intensity have been secured. Flavors are at present subject to the same method of attack. Perhaps the chemist can solve this problem as he has so many others and establish an analytical means for determining flavor. At present, however, we shall continue to use these standard odors for determining the keenness of the sensibility of a judge and for providing him with a measure by which he can classify the flavors presented to him.

The principle of the spinning disk as now incorporated into the

color comparator makes it possible to analyze quickly the colors of both raw and cooked meat. It was this device that served so admirably in the establishment of the fact that although some tough meat is dark, all dark meat is not tough.

Histological research as to the structure of the various tissues of the carcasses, the variation in the structure of animals of different breeding, and the effect of age and fattening upon structure has carried this line of research beyond the outposts of the medical profession. The establishment of method is still the major effort in this part of the laboratory and we are approaching a technic that will permit a rather rapid quantitative and qualitative comparison of muscle tissue.

The effect of moderate and intense heat, moist and dry heat upon meat of various qualities, is a broad field by itself. Storing and curing problems involve bacteriological investigations, the complexity of which is only equaled by their importance.

No research of this kind would be complete without a thorough grounding in the basic science of chemistry. Throughout, routine analyses must be taken to determine the character of the material studied. New methods of extraction and manipulation have been developed in an effort to analyze more thoroughly both the composition and structure of the many different kinds of tissue present in the meat.

Given a stockman with certain kinds of livestock and certain available feeds, what practical production methods will produce a proper balance of palatability and market value in his livestock? Should grain be fed to yearling steers on grass? To three-year-olds on grass? Should yearling steers on pasture be fed grain in the dry lot for 60 days or 100 days after the pasture season closes? Is the same true of the mature steers? What is the difference between heifer and steer beef? Should cattle be gaining or losing when slaughtered? What breed of sheep produces the most palatable meat under range conditions? Under Corn Belt conditions? Under winter-feed-lot conditions? What is the difference between the palatability of pork from hogs fed corn, soybeans, barley, peanuts? What is the effect of type and age upon the meat of all classes of livestock? How can tenderness and flavor be distinguished in the live animal and in the carcass? What part do coarseness of fiber and color play in distinguishing the quality of the meat? What processing and cooking methods can be used to improve the palatability of the lower grades of meat?

These are but samples of the questions that are raining down upon all investigators in meat research. Our ambition to develop a "yard stick" for meat quality is stimulated by the fact that a few inches of it have already been constructed.

BEEF HERDS FOR INDIANA FARMS

by

P. T. Brown, Indiana Extension Service

- - -

Indiana farmers are showing a decided tendency towards the keeping of cow herds to raise beef calves for the home feedlots. This system of beef production, almost universally practiced by the early Hoosier farmers, was relegated to the ranches and ranges of the West during the nineties. Many of the old pastures were plowed up for corn and the beef cow gave place in a large degree to the dairy cow while pork production also assumed increased importance. During the recent World War the high price of land and the greatly expanded demand for cereals, including corn, resulted in the widespread if not well-nigh universal acceptance of the belief that Indiana farmers could not afford to keep land in grass for the maintaining of beef cows whose offspring would sell on the open market for killing purposes. Since the war, however, the corn acreage and hog population have both decreased while the pasture area has simultaneously increased and farmers have again become interested in cow and calf raising.

As farmers became again interested in raising calves they naturally began seeking information relative to the possibilities for profit and the factors that help or hinder the financial returns of this enterprise. There are, in general, two limiting factors that must receive consideration. They are: (1) Maintenance costs of the breeding herd, and (2), the price that can be obtained for the calf crop at weaning time. If the maintenance per cow is $40 annually while the weanling calf is worth only $35, the farmer sustains a $5.00 loss per cow, even where each cow in the herd produces a weanling calf. However, if the cow can be kept a year for $25 and the weanling calf is marketable at $45, the farmer has made a profit of $20 per cow. If he should get only a 90 per cent calf crop, his profits would still be $15.50 per cow. The total value of the calf crop at weaning time is determined by: (1) Percentage of calves; (2), quality and weight of calves; (3), current market levels. The last factor is beyond the farmer's control while the other two are determined by the care and management given the cattle and by the quality of the breeding stock, chiefly the bull used.

Dismissing from our discussion the problems affecting the value of the weanling calf crop, there remains the important question regarding the maintenance costs of beef cows. Indiana farmers immediately began raising the question, "How much will it cost me to keep

a beef cow for a year?" This question was asked in all meetings where breeders and cattle producers got together and it was requested that Purdue attempt to get some information. As a result, an extension project involving the keeping of feed records on beef cow herds was started. The first step in this project is to find one or more farmers, located in a county where beef raising is practised, who will keep feed records for one year on their herds of breeding cows. It is important to select persons who own grade cows or who are selling all their calves for market purposes. The county agent and specialist give assistance in keeping the records during the year. At the end of the year, one or more farms in the county are selected as suitable places for holding meetings. At these meetings the cows and calves are inspected, the records are discussed, the farmer tells how he feeds and manages not only his cows but also his calf crop, and a general round-table discussion of problems that interest baby-beef producers is conducted. These meetings, held for the first time in the fall and early winter of 1928, have been surprisingly well attended and have in every case aroused considerable interest and discussion.

Inasmuch as these meetings are an important feature of the project and constitute one of the chief means of extending the information obtained in the records, it may prove interesting to describe one that is fairly representative. The meeting held in December, 1928, on the T. M. Garland farm in Parke County will serve as a typical example. This meeting was attended by 50 farmers, 45 of them being owners of commercial cow herds. In one lot near the barn the cows (15 high-grade Shorthorns) and the herd bull (a registered Hereford) were inspected. In an adjacent lot were the 15 spring calves averaging 516 pounds at weaning time. Mimeographed copies of Mr. Garland's feed records on the cow herd were given to each man. This record showed that it had cost $23.36 to feed each cow during the previous year, representing a winter feed cost of $14.03 and a pasture cost of $9.33. The calves were appraised by the farmers present at $55 per head as a conservative valuation. With these feed records in hand, the farmers began bombarding Mr. Garland with questions, all of which were taken up and discussed in order.

The net result of this discussion was to bring out the following points of management: (1) Grass pasture furnishes the only feed from May 1st to December 1st; (2), the winter feed consists almost entirely of low-grade or unmarketable roughage such as stalk pasture, oats straw, clover chaff, threshed soybean straw supplemented with some silage and clover hay.

The management of the calves came in for its full share of discussion. Mr. Garland outlined his management system as follows: (1) Calves born in spring from March to May; (2), calves run in

pasture with cows without grain during summer; (3), bull calves castrated when about two months old; (4), calves weaned about November 1st; (5), calves are fed during winter and sold the following May; (6), no heifers are saved for breeding purposes, all replacements in cow herd being made by purchases.

After Mr. Garland had answered the many questions that came up a brief discussion was given on the records obtained from the 14 farms that had completed records during the previous year. These records covered maintenance costs on 200 beef cows. The average feed cost per cow was $24.16. The average feed cost per calf raised was $25.70. The average spread between the feed cost per calf raised and the appraised value per weanling calf was $23.56.

The management of the calf crop varies greatly on the various farms where records have been completed. These systems may be classified as follows: The most common is that followed by Mr. Garland, where the spring calves run with the cows during the summer, are fattened during the winter and sold in the spring when they are one year old. Another system that has several advocates is to stock the spring calves through their first winter, grass them through their second summer, fatten them during their second winter and sell them in the spring when they are two years old. Other farmers feed their calves through the first winter, full feed them on grass during the second summer and sell them during the fall when they are about 18 months old. There are still other farmers (and their number is increasing) who feed their calves while they are nursing. These farmers have very early calves which are either kept in the barn and fed during the summer or are creep fed in the pasture. About September 1 these calves are weaned and full fed until December 1 and sold as fat calves weighing 650 pounds or better. One such farmer last year sold his steer calves December 11 on the Indianapolis market for $102.51 per head net. They were all nine months old except one early calf which was just one year old when sold.

The keeping of maintenance records is being continued because it is realized that the larger the body of data collected the more truly representative it will be and, therefore, the more valuable. In addition, however, to these records there are several farmers keeping feed records on their calves. These calves are being handled in accordance with the various systems previously mentioned. These records will form the basis of future meetings and will serve to demonstrate the possibilities for profit where home-raised beef calves are fed and finished on home-grown feeds.

The cow-and-calf system of farming in Indiana has the following

advantages, according to the testimony of whose who have cooperated in the keeping of these records:

1. Insures a supply of feeding calves at a minimum cost.
2. Provides a market for cheap and otherwise unmarketable roughage.
3. Avoids loss of calf fat, shipping fever and shrinkage on feeding calves.
4. Encourages the growing of grass which conserves soil fertility and reduces soil erosion.
5. Removes to a large extent the speculative element in cattle feeding and fits well into a diversified farm management scheme.

EMPLOYEES' COMPENSATION ACTS

The Federal Government and nine States provide compensation in some form for extension agents in cases of injury or accidental death while in performance of official duty. The amount of compensation allowed usually depends upon the salary received. In some cases, however, hospital and doctors' bills only are allowed in case of injury.

The Federal Employees' Compensation Act applies to all civil employees of the United States Government, including all cooperatively employed extension agents who hold appointments as agents of the United States Department of Agriculture, either with or without compensation. Benefits to cooperative employees are based on the amount of salary paid from Federal funds, either appropriated directly to the department or alloted to the States. Medical, surgical, and hospital service and supplies are furnished, and the services of United States medical officers or hospitals are obtained if practicable. In case of disability, two-thirds of the monthly pay or two-thirds of the loss in wage-earning capacity is granted, with a maximum of $166.67 and a minimum of $58.33 monthly, or the month's salary from Federal funds if less than $58.33.

In case of death from accident while in performance of duty or from disease due to employment, burial expenses not to exceed $200 are paid. If the employee leaves a widow, she receives 35 per cent of his monthly pay until her remarriage or death. The monthly pay as a basis for computing this compensation shall not be more than $175 nor less than $87.50, but the monthly compensation can not exceed the actual monthly pay. Ten per cent of the monthly pay is added for each child under 18 years of age. Provisions are made for other dependent relatives--- Excerpt from address of Dr. C. W. Warburton.

Nebraska

C. S. Maddox recently resigned his position as assistant animal husbandry specialist and on April 1, was succeeded by Paul McDill.

North Dakota

On October 15, 1928, D. C. McLeod was appointed to half-time duty on general animal husbandry extension work.

The breeders of purebred livestock in Kidder County met at Steele on April 26, and organized the Kidder County Livestock Breeders' Association. This organization will function as a unit of the North Dakota State Livestock Breeders' Association and cooperate in all of its livestock improvement work. The aims of the effort as set out in the Constitution adopted were as follows --

(1) To promote every legitimate interest of the livestock breeders in the county and to maintain the standing and reputation of the members as reliable breeders of purebred stock.

(2) To further the adoption and use of purebred sires of all classes of livestock in the herds of the county.

(3) To aid and assist in the purchase and exchange of purebred stock among the members of the association.

(4) To further to an extent determined upon by the members, the sale and disposal of such surplus stock as may accumulate from time to time. -- S. G. Denner.

Massachusetts

Sheep men of Massachusetts are looking forward to three events in late July and August.

A preliminary sheep-dog trial will be held during the Connecticut Farm and Home Week; a demonstration will be staged as a part of the livestock program at Amherst during Farm and Home Week; and the final dog trial for New England will be held at Bennington, Vt., on August 16. The demonstration at Amherst will be given by Preston Davenport and the young shepherd dog with which he won last year's event.

The trials this year are to be conducted along the lines of similar trials in England and Scotland, and Mr. David Fyffe of Ohio State University is to be the principal judge.

Sheep, lamb, and wool in New England are judged by quality rather than quantity. Wool from the Massachusetts State College flock was made this year into blankets and auto robes by students at the Lowell Textile School. The robes are very attractive and the wool going into them has been pronounced of very high quality. -- C. J. Fawcett.

Illinois

Balancing corn for hogs is a project in which 57 farmers in 16 Illinois counties turned in complete reports of feeds used and of pork produced for the calendar year 1928. Most of them used the protein feed recommended by the University consisting of tankage and linseed meal, 2:1, with alfalfa hay in winter and pasture in summer. The group using from 3 to 5 pounds of this protein feed with each bushel of corn as an average for the year produced pork the most cheaply. Those who used the complete McLean County sanitation system used only four-fifths as much feed to produce 100 pounds of pork as those who had no sanitation program. Large litters used less feed than small litters to produce 100 pounds of pork. Minerals did not save any feed. In fact 21 farms where salt alone was used averaged 422 pounds of feed to produce 100 pounds of pork as compared with 429 pounds on the 36 farms where other minerals were fed in addition.

This spring a total of 1,127 farmers in 25 Illinois counties attended 38 big-team hitch demonstrations which were given by the writer and C. W. Crawford of the Animal Husbandry Department. A single radio talk on these hitches brought in 107 written requests for more information. Farmers have shown great interest in the plans for combining more horses in one team and driving them all with one pair of lines. In some communities this spring many 6-horse teams were used on gang plows and on disks. Sometimes a harrow was attached. Farmers report great satisfaction with the big hitches. Their use is increasing rapidly in Illinois. -- E. T. Robbins.

Maryland

The date for the Third Annual Ram Sale at Centerville has been set for July 16th. For two years past the sheep men from the Eastern Shore and other parts of Maryland have gathered at Centerville during July for a ram sale. Both sales held thus far have been outstanding successes. The rams have brought fair prices for both breeders and

buyers. Buyers of rams at these sales have been especially well pleased with the values secured. About 45 rams have already been inspected and accepted for the event. This is a larger number of rams than was offered in the former sales and is due probably to the greater demand this year for purebred rams.

Thirty-five head of the rams selected are Hampshires and about ten head are Shropshires. The demand seems to be developing more and more for Hampshires, and an effort is being made to supply the buyers with exactly what they want. Every ram in the sale is a good individual. -- K. C. Clark.

Colorado

Two demonstrations are under way in Colorado to show the value of desirable winter rations for range calves. The demonstrations were planned at the request of stock growers' associations and individual ranchmen. They are conducted in cooperation with the associations and the Colorado Experiment Station.

One demonstration, located at the J. H. Dickens ranch in North Park, includes 128 head of calves selected as weanlings last fall. The purpose of the work at this ranch is to show the value of adding a protein supplement to native mountain hay for wintering calves. The calves were divided into four lots with 32 head in each lot. Lot 1 received native hay, one pound cottonseed cake, warm water; Lot 2, native hay, one pound cottonseed cake, cold water; Lot 3, mixed native and alsike hay; and Lot 4, native hay, cold water. Complete records were kept on the winter operations. All the calves were lot branded and are grazing on the same kind of range. This fall, the summer gains will be recorded, a field day will be held at the ranch, sponsored by the North Park Stock Growers' Association, and records and results will be discussed. It is considered that the information from this demonstration will apply to many high-altitude native-hay districts in Colorado.

The second demonstration is located at the R. F. Rockwell ranch in Delta County and includes 136 head of range calves. The purpose of this demonstration is to show the value of adding a light grain ration to alfalfa for wintering calves, especially, when such grain and alfalfa are produced locally and some distance from a railroad and cash-crop market. Weanling calves were selected last fall and divided into two lots of 68 head in each lot. Lot 1 received alfalfa hay and Lot 2, alfalfa hay, 1.8 pounds of oats and barley. The calves were lot branded, records were kept of the winter's results, and the calves are now on the same summer range. Next fall, when they come from the range as long yearlings, a field day will

be held at the ranch sponsored by the Delta County Stock Growers' Association.

The cattle from both demonstrations will be marketed next fall and final results published. The demonstration will be repeated next year with a similar group of calves.

During the past few years many Colorado sheepmen have started systematic culling of their range flocks in order to secure definite information on the value of culling.

The Extension Service is cooperating with three range sheepmen by culling, every year for five years, all the sheep in the flocks involved. Complete records are kept and approximately 5,000 head of sheep are culled each year. -- L. H. Rochford.

Two years ago, the county agent of Grant county advocated to a prominent ranchmen in that county the feeding of bulls for two months before the beginning of the breeding season. Nothing further was heard in regard to the matter until after the county agent had made the annual report, when the ranchman gave the data on his operations. Before the feeding of the bulls was inaugurated, the calf crop averaged 60 per cent.

The bulls were placed on feed May 1, 1927, and fed cottonseed cake, corn and Johnson grass hay for 60 days. Sixty-three bulls were fed. The calf crop for 1927 was 1,395 calves branded and sold from 1,600 cows. This year, the cow herd was reduced to 1250 cows but the same number of bulls has been retained and the same feeding system followed. One thousand calves were branded and sold from the 1,250 cows this year. The ranchman reports that 95 per cent of these calves were born before the first of June. The feed cost per bull was $7.00 per year. Simply stated, an increase of 685 calves was obtained at a cost of $882.00. -- From New Mexico Annual Animal Husbandry Report, 1928.

What a Difference One Little Letter Makes

John Borden, multimillionaire, has presented the A. & M. College with Jackson Orion King, the International grand champion Duroc-Jersey boar, valued at $32,000. He will head the college here, which is one of the finest in the country. -- Starkville, Miss. dispatch to the New Orleans State.

A PROGRAM OF LIVESTOCK IMPROVEMENT FOR GRANT COUNTY NEW MEXICO

by

Dr. W. L. Black, Extension Livestock Specialist

- - -

Grant county is one of the leading livestock counties of the State, having a larger cattle population per acre than any other in the State. However, this concentration of cattle is not a true indication of the carrying capacity of the range in that particular county, as the range is for the most part badly overstocked. Overstocking and poor breeding usually go hand in hand and that section of the State has been no exception to the rule.

For the past several years a few of the ranchmen have been trying to improve their methods but have been handicapped because of the fact that most of them had very little control over their ranges. However, with the advent of the individual allotment plan on the forest reserves, together with the fact that the percentage of other public domains is becoming smaller, many of them are now reaching a position where they feel that systematic methods of improvement may be followed advantageously.

The Extension Service of the New Mexico College of Agriculture and Mechanic Arts has, therefore, outlined a program of improved range management which embraces control of poisonous plants, (loco in particular); distribution of water, with the ultimate goal that no animal shall have to travel more than two miles to drink; systematic culling, with the ultimate goal that every beef animal in the county shall be a Whiteface, (Herefords are the popular breed); and elimination of scrub bulls with the goal that by 1934 every bull in the county shall be registered. Along with this program we are advocating control of the breeding season and feeding of the bulls before the beginning of the breeding season.

We are also advocating seasonal and rotation grazing along with reduction in numbers of females to the point where the range will tend to improve rather than depreciate. Some of the land in the county is covered with a heavy growth of live oak and other brush suitable for grazing goats. Other parts have coarse grasses and weeds suitable for grazing sheep. Vegetation surveys will be made and where conditions warrant, we will advocate running two or more species of livestock on the same range. The extent to which this can be practiced will depend largely on the activities of the United States Biological Survey, as it is absolutely necessary that predatory animals be controlled if sheep and goats are to be handled successfully.

There is a shortage of suitable saddle horses and a heavy demand for all surplus stock, either for army purposes or for polo ponies. Several United States remount stallions are in the county at present and it is hoped that more can be placed. The Gila Valley is becoming an intensive farming section and we are endeavoring to increase the quality and size of work stock through the bringing in of registered draft stallions.

In organizing a program such as the one outlined, the greatest difficulty encountered is the feeling on the part of the ranchmen that their conditions are worse than those found in other sections of the country, and that the obstacles are insurmountable.

The county is fortunate in having one of the most progressive banks in the State, the American National of Silver City. J. B. Gilchrist, president and Frank Light, vice president of this bank feel that the best way to bring about improvement in range methods would be to give the ranchmen an opportunity to visit other livestock-producing sections where successful methods are being used and where original conditions were no better than present Grant County conditions.

They accordingly organized a party of 26 men including the county agent and livestock specialist, and sponsored a tour of the territory covered by the Highland Hereford Association of Texas. This party left Silver City on April 18, 1929, and spent a week visiting ranches in the Big Bend. Various phases of the livestock business were discussed with the members of the Highland Hereford Association, special emphasis being given to methods of water distribution, fencing, and range management.

A fine spirit of friendship and every courtesy were shown the party and one of the finest things demonstrated was the fact that the ranchmen of the Big Bend considered one another almost as brothers, and not as competitors and enemies.

One of the high lights of the trip was the talk given by Meade Wilson, president of the Marfa State Bank, at a banquet given the party by the Highland Hereford Association. He summed up the various factors of success in the ranch business in one of the most concise statements we have ever heard.

He said: "The success of the ranch business depends primarily upon four things:

1st Fencing. Control your range.
2nd Water. Never force an animal to walk more than two miles to drink.
3rd Better Bulls. Always buy the best within economic limits.
4th Conserve your Range. Always understock."

The entire trip was a revelation as to possibilities of improvement under adverse conditions, and probably did much to advance the work in the county. It is our hope that more trips along similar lines may be arranged in the future, and that more men can be induced to accompany the expeditions as the last trip was composed of the most progressive ranchmen in the county and we would like to get more of the members of the "old school" who are inclined to be sufficient unto themselves.

A checkup of the swine-sanitation project for 1928 by one county agent shows that the ten men who cooperated on the project matured an average of 6.1 pigs per litter and had a loss of but 15.8 per cent. These men raised 874 of the 1,037 pigs farrowed by 143 sows. There were only 5 runts in the entire bunch. Last year (1927) these same men raised 798 pigs out of 981 farrowed by 123 sows, a loss of 18.7 per cent. The results are not outstanding until one is told that six of these men have been following the plan for one or more years. The four new cooperators had a loss of 28.8 per cent in 1927 while their loss in 1928 was only 9.9 per cent. In 1927 they raised 221 pigs out of 310 farrowed by 38 sows. In 1928 they had 57 sows farrow 385 pigs and matured 347 of them. The importance of getting the young pigs and sows to the clean pasture without coming in contact with the old contaminated hog lots is shown when one studies the 1928 results in Walworth county and sees that the three men who drove their pigs to clean pasture lost over 30 per cent of their pigs while those who hauled the sow and young ones to the clean pasture or had them farrow in colony houses on clean pasture lost only 8.7 per cent of the pigs farrowed. -- From South Dakota Annual Animal Husbandry Report.

Man is a carnivorous production,

And must have meats, at least one meal a day,

He cannot live like woodcocks, upon suction

But like the shark and tiger, must have prey;

Although his anatomical construction

Bears vegetables in a grumbling way,

The laboring people think beyond all question,

Beef, veal and mutton are better for digestion.

-- Lord Byron, in Childe Harold, Canto II

AN OHIO SHEEP EXTENSION ENTERPRISE

by

L. A. Kauffman, Animal Husbandry Specialist.

- - -

In a conspicuous place over the court house steps in McConnelsville, Ohio, hangs a large sign. On it, boldly set forth in red and black, are the following words:

NOW IS THE TIME!

COUNTY DRENCHING WEEKS - FIRST WEEK IN MAY JULY SEPTEMBER NOVEMBER

DON'T WAIT FOR TIME TO DRENCH--TAKE TIME

FAILURE TO DRENCH 4 TIMES DURING THE YEAR COSTS MORGAN COUNTY SHEEP MEN THOUSANDS OF DOLLARS.

All of which goes to show that war has been declared on the stomach worm of sheep and continuous battle has been waged since July, 1928. It came about in the following manner: Morgan county, with a sheep population of 67,000, is one of the largest fine-wool counties in the State and enjoys the reputation of producing as good wools as any other part of southeastern Ohio. But dealers and mill men say these wools are not as good as in former years, lacking both length and tensile strength.

For two years H. F. Eaton, the county agent, thought this problem over. On every occasion possible he talked with growers, got their ideas and cataloged their problems. When he got through, he was sure that parasites, particularly the stomach worm, and lack of legume hays for winter feeding, caused most of the trouble. Morgan county is typically a grazing county. Some of the farms have had sheep on them for a hundred years, and on many no changes of pasture can be made during the year. Clover has become almost a crop of the past, except where lime and phosphorus have been restored to the soil.

With this information at hand, Mr. Eaton asked that some help be given him by the College of Agriculture in developing a sheep program for the county. A conference was held with the district supervisor of extension work and the livestock specialist. An economic survey of the county made by the rural economics specialist was studied and a program developed.

There are 846 sheep owners in the county. To each of them a questionnaire was sent asking about their management practices. A letter explaining the project and an enrollment card were enclosed. Five hundred and twenty-six owners returned both card and questionnaire and enrolled in the project, which calls for the use of purebred rams, culling of the ewe flock, treating four times yearly for stomach worms, feeding a balanced ration and the production of legume hays for winter feeding.

The answers to the questionnaires showed that the 526 men reporting owned 27,035 sheep. Of this number 5,377 were drenched once last year; 9,585 drenched twice; 8,015 three times and 4,059 four times or more. Still there remained almost 40,000 sheep and lambs of the 67,000 in the county that were not drenched at all.

Last fall a series of drenching demonstrations was scheduled. They were so arranged as to cover the county thoroughly. Any one interested did not have to travel over five miles to get the latest information on methods and materials. At most of the demonstrations parasitized sheep were "posted." This feature served forcibly to drive home the need for treatment, especially when the posted sheep was in fair condition, but still showed a heavy infestation of worms.

During the winter a series of feeding and management schools was held. All-day sessions were divided into a morning devoted to a discussion of feeding and an afternoon to such phases of flock management as increasing the lambing percentage, lamb troubles and preparation of fleeces for the market. The importance of good feeding was especially stressed. The result was that feed stores and mill men in the county reported their sales of pea-size linseed cake and other high protein supplements as more than double any previous year. This spring over 900 acres of soybeans were seeded for hay, which is over 300 acres more than last year.

Late this summer the Ohio Ram Special, a 10-car sheep demonstration train will spend a day in the county. Talks on breeding, feeding and management will be given; exhibits of wool, and sheep carried on different systems of management will be on display; and purebred rams will be offered for sale. Then later on in the fall the county will be thoroughly covered with ram and ewe selection demonstrations.

Everybody talks sheep in Morgan county. The sheep business is the main agricultural enterprise on most farms. Bankers, merchants, and other business men are behind the movement to improve the flocks of the county. Drug stores, general stores, and hardware stores are all carrying placards in their windows with wording similar to the sign over the court house steps. In each of them is a display of

drenching materials, syringes, etc., as well as printed directions for treating sheep and information on the culture of soybeans.

On the spacious lawn of the court house two yearling Merinos hold forth, one the product of neglect, no treatment, and timothy hay as the winter roughage ration; the other a fat, sleek, well-fed sheep treated four times for stomach worms last year. Thousands have seen the comparison, not a few have followed the arrows to the county agent's office to get information on sheep production and some have asked voluntarily to be enrolled in the Morgan County flock and fleece improvement project.

Ah! Yes! It's a hard life that Haemonchus contortus lives in Morgan county.

A Club Boy's Philosophy

'Tis a grand old place - this farm of ours,
With meadows wide and shady bowers.
The corn stands ripening row on row,
Dad's field and mine - both you know,
Planted just right the 4-H way --
Who says that Club work doesn't pay?

Why should I stray from the farm away,
To spend my life in the city gray?
In raising calves I take delight,
Because I've learned to do it right.
There's only one method - the 4-H way --
Who says that Club work doesn't pay?

There's a lot on our farm to be proud of, indeed,
We have purebred stock and pedigreed seed.
By following the advice of our college, you see,
We are in business together - Dad and me --
And we run the livestock the 4-H way --
Who says that Club work doesn't pay?

-- R. S. Allen.

We think so because all other people think so;
Or because we were told so, and think we must think so;
Or because we once thought so, and think we still think so;
Or because having thought so, we think we will think so.
-- Henry Sidgewick

HOW RANGE EWES ARE SELECTED FOR MORE AND BETTER WOOL PRODUCTION

by

Joseph W. Wilson, Nevada Extension Service

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Increasing the value of 10,000 head of range sheep 75 cents or more per head by grading for more and better wool production has been one of our main projects in aiding in the improvement of the livestock industry in eastern Nevada.

The sheep or wool project work was inaugurated in eastern Nevada in the fall of 1925 with the assistance of Dean J. A. Hill of the University of Wyoming. What has become known as the "touch system" was used then and we have since adopted it as the most practical for range purposes.

The factors emphasized by this system are:

1. Length of staple
2. Uniformity of fleece
3. Density

In other words the quality and value of fleece per pound are emphasized rather than weight of wool alone. Ewes are also selected which are of good size and show breed character. The final and most distinct advantages of the touch system are the factors of time and expense.

In our work in Nevada we start about eight o'clock in the morning and grade a flock of 2,500 head by four o'clock in the afternoon. The sheep owner is at no additional expense or trouble except that he must provide a different colored paint or ear tags for the selected ewes. Ear tags are recommended.

For the purpose of grading, 100 to 200 head are placed in a chute at a time and either the choice sheep or culls are marked. It is easiest to mark the grade of which one expects to have the least number, i.e. if but about 20 per cent are to be culled then the culls are marked or if only a few choice ones are separated they are marked.

A number of flocks are graded each year but records have been kept only on the sheep owned by the Smith Creek Livestock Company, which

owns from 7,000 to 8,000 head. The work began October 28, 1927.

The purpose of this grading was to select 2,400 ewes for one band of ewes with superior fleeces. With this band selected Rambouillet rams were used. The ewe lambs from this band will be kept to build up the range flock. On the remaining bands the company expects to use Hampshire rams and market all the produce as lambs. The ewes were graded for length of staple and evenness of fleece. Due to the higher value of half-blood and 3/8 fleeces more ewes with fleeces of this character were retained. The writer graded about 2,500 a day. With such a large number the work must be as fast as possible in order to allow the sheep to get back on feed and also so as not to delay the general operation where a large number of men are employed. Under such circumstances a small percentage of error is expected.

The following table shows that the reserve fleeces sheared 1.82 pounds more in 1928 than the culls and that the average value was 75 cents per fleece over the cull fleeces.

Group	Average shrink	Average fleece weight	Average price per pound	Average fleece value
	Per cent	Pounds		
RESERVES	65.6	9.32	$ 0.382	$ 3.56
CULLS	65.6	7.50	.375	2.81
Difference in favor of reserves		1.82	.007	$ .75

Further information concerning the weights of the two groups follows:

Weight of 50 Fleeces From Each Flock

	Culls	Reserves
Number of fleeces weighing 5 pounds	4	0
" " " " 6 "	9	3
" " " " 7 "	15	6
" " " " 8 "	11	9
" " " " 9 "	4	11
" " " " 10 "	5	13
" " " " 11 "	1	4
" " " " 12 "	0	4
" " " " 13 "	1	0
Total	50	50

A check of field grading was again made when the wool was shipped to the Pacific Cooperative Wool Growers' Association warehouse where two bags were sampled from the full flock and two bags

from the reserve flock. The following tables show how they graded at the warehouse:

	Grading Weights					
	Fine combing	French combing	Fine clothing	1/2 clothing	3/8 clothing	1/4 clothing
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
Reserve ewes, totals	154	516	---	26	---	---
Cull ewes, totals	9	252	58	266	9	5

Anyone familiar with wool grading will recognize that the more valuable fleeces were found in the grades wherein the more value per fleece is secured, namely, fine combing and French combing. In a letter received regarding the grading of these samples, the following statement was made:

"I wish particularly to call your attention to the sample of lot marked "X", which was the one graded out for the choice band. I find that only 4% or 5% of that should come out of the flock. As you will notice, the half-blood clothing fleeces (I believe there were only 4) weighed an average of 6-1/2 pounds each; out of these two sacks (our number 57 and 63) we had 85 fleeces of French combing and fine combing, with the exception of those 4 fleeces just mentioned."

The following is a preliminary table from the 1929 clip which shows a check of 25 ewes from the reserve flock. Increased length of staple, lighter shrinkage, and greater uniformity in grades from the mixed flock of 1927 are indicated. Complete data on this flock for 1929 is not yet available:

Grade	Weight	Shrink	Value Per Pound	Total Value
	Pounds	Per cent		
Fine medium combing	9.2	64	$0.35	$ 3.22
1/2 combing	11.0	64	.33	3.63
Fine combing	9.2	64	.35	3.22
French combing	10.9	66	.325	3.54
1/2 combing	11.4	65	.32	3.32
Fine combing	9.5	62	.37	3.51
Fine combing	9.8	64	.35	3.43
French combing	7.2	64	.34	2.44
1/2 clothing	9.5	60	.36	3.42

1/2 clothing	13.0	66	.31	$ 4.03
Fine medium combing.	10.5	65	.34	3.57
Fine medium combing.	9.4	66	.335	3.14
Fine medium combing.	9.1	64	.34	3.09
Fine combing	11.0	66	.34	3.74
French combing	8.0	64	.34	2.72
1/2 clothing	7.4	62	.34	2.51
Fine medium combing.	9.1	63	.36	3.27
French combing	8.0	63	.35	2.80
French combing	11.1	68	.31	3.44
French combing	9.9	62	.36	3.56
French combing	8.5	66	.325	2.76
French combing	7.8	64	.34	2.65
3/8 clothing	11.0	66	.27	
1/2 clothing	10.1	64	.35	3.85
Fine combing	9.7	62	.37	3.58

Average value per fleece $ 3.17
" weight ..... 9.25 lbs.
" shrink ..... 64 per cent

There are approximately 1,250,000 sheep in Nevada, the largest percentage of which are range ewes whose breeding is of Rambouillet foundation. The average wool production in Nevada is slightly less than 8 pounds per head. A number of flocks shear 10 to 12 pounds per head. There are also large numbers of flocks which shear close to six pounds per head. Our purpose has been to show the sheep men how their flocks can be increased by from one to four pounds per head through selecting the best ewes and breeding to large, long-wool type Rambouillet or Corriedale rams. Grading ewes is now planned in six additional counties in Nevada, where two sheep men in each county have been selected to demonstrate the value of grading their ewes for better wool production. Approximately 50,000 head will be graded during the months of October and November. Where the grower is a member of the Pacific Cooperative Wool Growers' Association, the wool is checked at the wool warehouse and if market conditions are satisfactory the wool from the reserve ewes may be sold separately from that of the cull ewes.

The proper realization of the value of grading for better wool production and better care of the fleeces at shearing time is expected to return thousands of dollars to the sheep men in Nevada.

Adversity is sometimes hard upon a man; but for one man who can stand prosperity, there are a hundred that will stand adversity. -- Carlyle

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MINNESOTA 4-H CLUB SCHOOL IN LIVESTOCK MARKET PRACTICE

by

W. E. Morris, Minnesota Extension Service

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The Minnesota 4-H School in livestock market practice was organized to provide the next logical step in the training of livestock club members. Our boys and girls in livestock club work have been trained entirely along production lines. These club members have been trained to select, feed, fit and show animals. Those who have remained long in club work have become proficient in these things. These same club members with a number of years of club experience are now approaching the age when a further step is necessary in their training. Before long they will be producing livestock on a larger scale as a business. In this business they will meet with problems which their club work does not cover, that is, the marketing of the animals which they have learned to produce skillfully.

The next logical step in training for such club members is a project which will give them knowledge of market practice. To meet this need, the first school in livestock market practice was designed to familiarize those in attendance with the importance of the livestock market and with many of its details. Prior to this time we had organized and developed projects of an advanced nature in livestock production for boys and girls of advanced club age. The Advanced Junior Sheep Club Project, in which the member is required to own and manage a flock of ten breeding ewes, was one of these. The Advanced Junior Feed Lot Project, in which the member is required to feed out five steers, was another. The Ton Litter Project was a third. It is desirable with all projects to have a round-up or achievement day for the winners. These advanced projects are completed at various times, some lots may have been finished and sold before others are through, which prevents bringing the animals together for competition. Another form of achievement day was therefore necessary with these projects.

With these thoughts in mind, it seemed that training in marketing would be the best form of round-up for these members. Accordingly, we conferred with the market people at South St. Paul relative to outlining such a course and securing the necessary cooperation in putting it on. Cooperation was assured at once for developing a suitable program and in securing the necessary finances with which to conduct such a school. The finances were appropriated by the stockyard company and the daily market newspaper.

The opportunity to attend this school in livestock market practice was awarded to 25 boys. This number was arbitrarily set and given to counties participating in the three projects named. It was also provided that the State club office could select boys of proper age who had made a creditable record in livestock projects over a period of years. This provision was made to assure a full attendance at the school.

A school committee was arranged for at the South St. Paul market consisting of representatives of the stockyards company, livestock exchange, the cooperative selling agency, and the United States Packers and Stockyards Administration. This committee was vested with the authority to pass on all of the talks to be given. These were required to be written in advance and given to the committee so that no controversial material would be included and in order that the material given on each subject would be as authoritative as possible. This resulted in harmony and prevented any difficulties which might have arisen among firms and various organizations on the market.

The program was designed to cover every phase of the livestock marketing carried on at a central market. Each club member was given a copy of the talks with the idea that he could go home and make use of this material in talks before farmers and 4-H club meetings so as to extend the influence of the school in this way.

The program was put on at South St. Paul by men from the various organizations concerned in the topic under discussion. The extension division and animal husbandry department of the college provided one forenoon of the instruction. The United States Department of Agriculture supplied A. T. Edinger who put on the carcass demonstration and discussed the demand of the consuming public.

The course, of which the following is an outline, came up to our expectations and will be continued another year, because of the possibilities we see in it, and the favorable reaction of those in attendance and the ones who took part in the program.

The School of Livestock Market Practice

- PROGRAM -

First Day

Tour of stock yards and packing plants

Purpose: To see the various stages in the livestock market process such as delivery to the chutes by truck

and rail, unloading, feeding, watering, resting, sorting, grading, trading and selling, weighing and delivery to the buyer.

Market grades and classes of livestock were exhibited, described, and compared in each division of the stock yards during the tour.

Commercial cuts of meat were exhibited in the packing house, and the comparative value of the various grades of meat cuts demonstrated.

Meeting - South St. Paul

The History of the Open Competitive Market, and the Part It Has Played in the Affairs of the Livestock Industry.

This talk covered the operations of a public market; the functions of the various organizations which provide service at the market as they are related to one another; together with a detailed explanation of the functions and services of the stockyards company.

The Demands of the Consuming Public.

What the public wants in meat.
How the demands for various grades and cuts of meat vary from time to time.
Distribution of finished meat products.

By A. T. Edinger, United States Department of Agriculture

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Second Day

University Farm, St. Paul. Program by staff members.

Club Work and the Purpose and Value of This Course.
The Buying and Selling of Purebred Livestock.
New Things in Livestock Feeding.
The Importance of Margin.

Afternoon

Meeting - South St. Paul. Program by Market Representatives.

The Function of a Livestock Commission Company, and the Services which They Provide for Patrons.

The Part a Dealer Firm Plays on the Market.
The History and Functions of a Livestock Exchange and a Trader Exchange.
The History and Functions of a Cooperative Sales Agency.
Livestock Market Reporting and News Service.
An Explanation of the Service Rendered on a Public Market by the Bureau of Animal Industry.
The Service which the Packers and Stockyards Administration Provides to the Market and Its Patrons.

Estimated costs -

25 students

Subsistence -	@ $ 2.00 per day -	2 days	$100.00
Transportation -	10.00		250.00

Administration - Director of the course
Committee on arrangement and program, South St. Paul and Extension Division represented.
Committee on supervision and follow up, club supervisors and specialists.

KENTUCKY ADDS ANOTHER PUREBRED BULL COUNTY

Following an intensive drive against scrub and grade bulls, Taylor County, Kentucky, recently went on a strictly purebred bull basis. According to Wayland Rhoads, field agent in animal husbandry, 106 registered bulls, 55 registered boars, 83 registered rams, and 215 purebred cockerels were placed in service on Taylor County farms during the past two years.

This is the fourth county in the United States to eradicate all grade and scrub bulls.

I mean to assert that education is not to teach man facts, theories or laws; it is not to reform them or to amuse them or to make them expert technicians in any field; it is to teach them to think; to think straight if possible, but to think always for themselves. -- Robert Maynard Hutchins.

MORE HORSES AND MULTIPLE HITCHES

by

C. A. Burge, Horse Extension Specialist,
The Pennsylvania State College.

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During several years past, draft-horse production has declined. Now, it seems, there is a general tendency over the country to breed more mares and stop this decline. In Pennsylvania there is considerable activity among breeders and mare owners to increase production.

Pennsylvania farmers could well profit by the good prices being paid for draft animals by breeding their mares to good draft-type stallions and raising foals. Our farms are small, on the average, and could be ideally operated with from 3 to 6 brood mares producing 3 or 4 good foals a year, thus realizing returns from the investment instead of a steady depreciation. The use of substitute power is in direct competition to the horse grower and lowers the value of horses and feed crops because the demand for their use is reduced.

Realize Need for More Horses

More mares are being bred, and colts are again found on many farms. Interest is being aroused and the necessity for more colts is being realized. There are still many sections where good stallions are needed but these needs are being gradually filled.

Great interest and keen rivalry have developed as the result of the formation of Gold Medal Colt Clubs in several of our Pennsylvania counties. These clubs were organized in the fall of 1928 and are calculated to teach farmers the value of good breeding and liberal feeding in the development of draft horses.

Colt Clubs Stimulate Interest

The Keystone Gold Medal Colt Club project is a means whereby members of the club develop colts to make required gains within one year. The foals are usually shown at the county fair or at a special horse-day event, at which time they are weighed. One year later final weights are taken and the colts shown in competition, with medals awarded on the basis of gain in weight and show record. The object of the club is to grow out the foals by liberal feed and good care and to show that only by these means can we avoid having a stunted foal, which in time results in a stunted horse. Medals are awarded on a

basis of gain in weight and show record. Gold medals are awarded for all colts gaining 600 pounds or more, provided they place above all colts gaining 500 pounds and less than 600 pounds, otherwise they are eligible to silver medals only. Silver medals are awarded for all colts gaining 500 pounds and less than 600 pounds provided they place above all colts gaining 400 pounds and less than 500 pounds, otherwise they are eligible to bronze medals only.

Expect Increased Enrollment

In the counties where colt clubs are organized, the interest is keen and much larger enrollments are expected when this year's clubs get under way. As evidence of the interest in horses and colt clubs, seven additional counties will organize Gold Medal Clubs this fall.

With increasing interest in colts has come interest in the multiple hitch for small units, such as 4, 5, 6, and 7 horses, operated by one man. Farmers are realizing the need for more efficient use of the horse. The multiple hitch can be utilized because it permits use of horses for farm power and this power can be produced on the farm. The feed can be produced on the farm to grow out and maintain them and thereby procure both feed and power at first cost. In this way farmers are getting their power from products grown on the farm. The multiple hitch is not only more powerful but also is easier on the horses. It also helps in training a young horse, for with plenty of power on any farm tool the horses can do the work easily. The use of the multiple hitch and the proper combining of farm implements can easily double the output on any field job, and thus help to cut down cost of production by eliminating man labor.

ANIMAL HUSBANDRY MEETING AT MILES CITY, MONT.

The western section of the American Society of Animal Production, under the leadership of Prof. E. L. Potter of Oregon, will hold a meeting at the United States Range Livestock Experiment Station, Miles City, Mont., August 19 to 24. All animal husbandry and extension workers will be welcome.

"The greatest increases in farm profits are made by improving production at its weakest points and not at its strongest. Don't stop to polish the whistle when you need new gears."

RECENT PUBLICATIONS

(Listing is made of recent publications devoted to subjects of more or less interest to animal husbandry extension workers. New bulletins of the United States Department of Agriculture are not included as copies of them are sent to members of this group as soon as available.)

"Shall Growing Pigs Be Full Fed?" by Ferrin and McCarty - Minnesota Experiment Station Bulletin No. 248.

"Nebraska Portable Hog Houses," by Waggener and Wood - Nebraska Extension Service Circular No. 230 (Revised).

"Nebraska System for Tattooing Hogs for Identification after Slaughter," by Boomer and Waggener - Nebraska Extension Service Circular No. 234.

"House Your Pigs?" by Posson and Waggener - Nebraska Extension Service Circular No. 233.

"Hog Houses for Wisconsin," by Fargo and Swenehart - Wisconsin Extension Service Circular No. 225.

"A Profitable Plan in Producing Pork," by Grady Sellards - Kentucky Extension Service Circular No. 211 (Revised).

"Forage Crops for Hogs and Feeding Hogs on Forage Crops," by Lowery and Burns - Alabama Extension Service Circular No. 113.

"Contagious Cattle Abortion," by F. B. Hadley - Wisconsin Extension Service Circular No. 224.

"Fattening Steers of Various Ages," by H. J. Gramlich - Nebraska Experiment Station Bulletin No. 229.

"Cattle Feeding Investigations, 1926 - 1927," by Anderson, McCampbell and Marston - Kansas Experiment Station Circular No. 143.

"Economic Aspects of the Beef Cattle Industry," by Voorhies and Koughan - California Experiment Station Bulletin No. 461.